AMENDMENT TO THE CLAIMS

1. (Currently Amended) A process of forming a coating on a substrate, the process comprising steps of:

a) forming a coating on the substrate comprising initially a plurality of layers of fullerene molecules; and

b) removing layers of the fullerene molecules, while maintaining a temperature of the substrate at no more than about 200 degrees C, leaving an approximate monolayer coating of fullerene molecules on the substrate.

2. (Previously Presented) The process of claim 1, wherein the temperature of the substrate is maintained no more than about 150°C during the removal of layers of fullerene molecules from the coating.

3. (Previously Presented) The process of claim 1, wherein the temperature of the substrate is maintained no more than about 100°C during the removal of layers of fullerene molecules from the coating.

4. (Previously Presented) A process of forming a coating on a substrate, the process comprising steps of:

a) forming a coating on the substrate comprising a plurality of layers of fullerene molecules;

b) adjusting a beam generator to produce a beam arranged to break the fullerene-to-fullerene intermolecular bond of the coating and inadequate to break the fullerene-to-substrate association/bond of the coating; and

c) directing the beam at the coating to break the fullerene-to-fullerene intermolecular bond while maintaining a temperature of the substrate at no more than about 200 degrees C, leaving an approximate monolayer coating of fullerene molecules on the substrate.

5. (Original) The process of claim 4, wherein the beam generator is an ion beam generator.

6. (Original) The process of claim 4, wherein the beam generator is a gas cluster ion beam generator.

7. (Original) The process of claim 4, wherein the beam generator is a laser beam generator.

8. (Previously Presented) The process of claim 7, wherein the laser beam generator produced a laser frequency below the ultraviolet frequency range.

9. (Original) The process of claim 4, wherein the beam generator is an electron beam generator.

10. (Previously Presented) The process of claim 4, wherein step (c) includes:
directing the beam at an acute angle to the substrate.

11. (Original) The process of claim 10, wherein the angle is between about 40° and 65°.

12. (Previously Presented) The process of claim 4, wherein step (c) further includes steps of:
i) focusing the beam so that the beam impinges less than all of the coating, and
ii) moving the beam generator relative to the substrate so that the beam successively impinges substantially the entire coating.

13. (Previously Presented) The process of claim 4, wherein step (c) includes
i) focusing the beam so that the beam impinges less than all of the coating, and
ii) moving the beam generator relative to the substrate so that the beam successively impinges selected portions of the coating.

14. (Original) The process of claim 1, wherein the substrate is formed of a material selected from the group consisting of metals and semiconductors and combinations thereof.

15. (Original) The process of claim 1, wherein the substrate is formed of a material selected from the group consisting of Co-Ni, Co-Cr, Co-Ni-Cr, Co-Pt, Co-Ni-Pt, Co-Cr-Ta, Co-Cr-Pt, Co-Cr-Ni-B, Co-P, Co-Ni-P, PtMn, Cu, Ru, Rh, Ta, CoPt, CoCuPt, Au, rare earth elements, transition metals, mixtures thereof, and alloys thereof.

16. (Original) The process of claim 1, wherein the fullerene molecules are bonded to the coating surface with a bond strength corresponding to a fullerene desorption temperature from the monolayer of at least about 700 K.

17. (Original) The process of claim 1, wherein the fullerene comprises C_{60}.

18. (Previously Presented) A process of forming a coating on a substrate, the process consisting essentially of the steps of:

a) forming a coating on the substrate comprising a plurality of layers of fullerene molecules;

b) applying a solvent to the coating at no more than about 200 degrees C for a period of time adequate to break the fullerene-to-fullerene intermolecular bond of the coating and inadequate to break the fullerene-to-substrate association/bond of the coating to thereby remove the fullerene molecules from the coating that are not bonded to the substrate; and

c) removing the solvent leaving an approximate monolayer coating of fullerene molecules on the substrate.

19. (Previously Presented) The process of claim 18, wherein the temperature of the substrate is not greater than 150°C during application of the solvent.

20. (Original) The process of claim 18, wherein the solvent is selected from the group consisting of hexane, toluene, benzene, carbon tetrachloride, carbon disulphide, and mixtures thereof.

21. (Previously Presented) The process of claim 1, wherein the layers of fullerene are removed by breaking the fullerene-to-fullerene intermolecular bond of the coating using a technique selected from the group consisting of applying beams and applying solvents to the coating.

22. (Previously Presented) The process of claim 4, wherein the temperature of the substrate is maintained no more than about 150°C during the removal of layers of fullerene molecules from the coating.

23. (Previously Presented) The process of claim 4, wherein the temperature of the substrate is maintained no more than about 100°C during the removal of layers of fullerene molecules from the coating.

24. (Previously Presented) The process of claim 4, wherein the substrate is formed of a material selected from the group consisting of metals and semiconductors and combinations thereof.

25. (Previously Presented) The process of claim 4, wherein the substrate is formed of a material selected from the group consisting of Co-Ni, Co-Cr, Co-Ni-Cr, Co-Pt, Co-Ni-Pt, Co-Cr-Ta, Co-Cr-Pt, Co-Cr-Ni-B, Co-P, Co-Ni-P, PtMn, Cu, Ru, Rh, Ta, CoPt, CoCuPt, Au, rare earth elements, transition metals, mixtures thereof, and alloys thereof.

26. (Previously Presented) The process of claim 4, wherein the fullerene molecules are bonded to the coating surface with a bond strength corresponding to a fullerene desorption temperature from the monolayer of at least about 700 K.

27. (Previously Presented) The process of claim 4, wherein the fullerene comprises C_{60}.

28. (Previously Presented) The process of claim 18, wherein the temperature of the substrate is maintained no more than about 100°C during application of the solvent.

29. (Previously Presented) The process of claim 18, wherein the substrate is formed of a material selected from the group consisting of metals and semiconductors and combinations thereof.

30. (Previously Presented) The process of claim 18, wherein the substrate is formed of a material selected from the group consisting of Co-Ni, Co-Cr, Co-Ni-Cr, Co-Pt, Co-Ni-Pt, Co-Cr-Ta, Co-Cr-Pt, Co-Cr-Ni-B, Co-P, Co-Ni-P, PtMn, Cu, Ru, Rh, Ta, CoPt, CoCuPt, Au, rare earth elements, transition metals, mixtures thereof, and alloys thereof.

31. (Previously Presented) The process of claim 18, wherein the fullerene molecules are bonded to the coating surface with a bond strength corresponding to a fullerene desorption temperature from the monolayer of at least about 700 K.

32. (Previously Presented) The process of claim 18, wherein the fullerene comprises C_{60}.